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(54) Title: NOVEL SKIN AND HAND CLEANSING PROCESS AND COMPOSITIONS

(57) Abstract

The present invention provides an antiseptic cleansing composition comprising an alkanol and an aqueous concentrate of a surfactant. The compositions may also comprise a biocide. The present invention further provides a method for cleansing skin comprising applying the composition of this invention onto the skin allowing the alkanol in the composition on the skin to evaporate whereby the skin is substantially dry, applying a small amount of water to the substantially dry skin, washing the skin under foam generation and finally rinsing the skin.

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Novel Skin And Hand Cleansing Process And Compositions Technical Field

The present invention relates to a process for antiseptically cleaning the skin and hands and compositions therefor.

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Background Art

It has been common practice worldwide that preoperative hand cleansing has been carried out in either of the two following ways.

In one instance antiseptic skin and hand cleansing is effected by treating the hands with an anti-microbial agent dissolved in an alcohol such as ethyl or isopropylalcohol or a 10 mixture thereof at high concentrations, usually 70% v/v, or by scrubbing the hands or skin for 5 minutes with an antibacterial aqueous soap solution.

Although the use of antiseptic alcoholic solutions achieves complete disinfection of the hands and skin, repeated application can cause, due to dehydration, reddening with irritation and in some cases breaking of the skin.

15 In the other instance hand scrubbing procedures with aqueous germicidal soaps over the prescribed 5 minute period can cause considerable, but not complete reduction of the bacterial flora on the skin and although dehydration of the skin is largely reduced in comparison to antiseptic alcoholic preparations, repeated prolonged scrubbing can produce similar deterioration of the skin.

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Disclosure Of The Invention

According to one broad form of the present invention there is provided an antiseptic cleansing composition comprising an alkanol and an aqueous concentrate of a surfactant.

According to another broad form of this invention there is provided a method for 25 cleansing skin comprising applying the composition of this invention onto the skin in a sufficient amount and for a sufficient period of time in order to achieve asepsis.

Suitable alkanols are the lower alkanols such as methanol, ethanol, n-propanol or isopropanol. Alkanols might be single or mixtures thereof and should not be less than 40% and not more than 80% and generally not more than 60% of the total volume. 30 Further aromatic alcohols such as benzyl alcohol, phenoxyethyl or - propyl alcohol might be added to a maximum of 5% calculated on the total volume of the final formulation.

The cationic compound may be a quaternary ammonium compound or a bis or di-bis-biguanidine:

The composition may also contain a microbiocidal compound which may be any 35 commonly used for disinfection. For example, the microbiocide may be a cationic microbiocide, an iodophor, a bacteriostat or a phenol or derivative thereof.

Suitable quaternary ammonium compounds are benzalkonium chloride, benzethonium chloride, methylbenzethonium chloride, hexadecylpyridinium chloride,

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alkyliisoquinolinium bromide or hexadecyltrimethylammonium bromide. Most preferably the quaternary ammonium compound is benzalkonium chloride.

A preferred biguanidine is chlorhexidine gluconate.

A preferred iodophor is povidone iodine.

5 A preferred bacteriostat is hexachlorophene or triclosan.

A preferred phenol is 2-hydroxy diphenyl.

Surfactants should preferably be mild to the skin such as the sodium sulfosuccinates, monoethanolamine lauryl ethoxy sulfonates or amphoteric such as dodecyl propylamino acetic acid. Where a cationic biocide is used, the nonionic surfactant 10 may be the ethoxy-derivative of either a fatty alkanol or alkyl phenyl.

The alkanol may be present up to 80 parts by volume.

The time of application is from a minimum of about 30 to a maximum until most or all of the alkanol has evaporated, but preferably about 90 seconds.

Furthermore on application of a small amount of water excellent sudsing 15 cleansing is obtained on normal handwashing movements, for 15 to 30 seconds. The hands are then rinsed under running water and dried.

The compositions of this invention may be used to disinfect the skin.

Advantageously foaming agents can be included in the compositions such as the alkyl mono or diethanolamine of oleyl-, coco-, lauryl- or undecylenic acid or thickening 20 agent such as carbopol or hydroxyethyl cellulose.

The benefit of this novel preparation is that it provides a new process of complete hand and skin disinfection by reducing scrubbing time considerably from the standard time of 5 minutes by 2 to 3 minutes without dermatological damage to the skin on repeated applications.

25 This method is particularly applicable to human handwashing.

Best And Other Modes For Carrying Out The Invention

The present invention will now be described with reference to the following examples which should not be construed as limiting on the scope thereof.

Example 1

Hand Wash

30	Ethanol	70.0 ml
	Triclosan	1.5 g
	Laureth 2	5.0 g
	Cocodiethanolamine	4.0 g
35	Hydroxypropylcellulose	1.0 g
	Water to final volume	100.0 ml

Example 2**Demonstration Of Effectiveness Of The Present Composition**

The hand wash of Example 1 was evenly applied for 60 seconds on dry hands to cover all parts and a little water added with a routine washing movement of the hands. A copious foam developed similar to washing with soaps. After 30 seconds the hands were rinsed well under running tap water and dried with a paper towel.

Two forefingers were then placed for 30 seconds on an unseeded agar plate, then on an agar plate seeded with *Escherichia coli* and again on unseeded agar.

10 None of the plates after incubation of 48 hours showed any growth. This demonstrated that not only complete disinfection after the novel washing process of one and a half minutes was achieved but also residual antibacterial properties on the skin by inhibiting growth of the seeded agar with *E. coli* after being in contact with it. Using the same conditions a glove juice test gave a log reduction between 1.5 to 2.0.

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Example 3**Hand Wash**

	Chlorhexidine gluconate 20%	5.0 g
	Ethanol	30.0 ml
	Isopropanol alcohol	40.0 ml
20	Nonylphenol ethoxylate	7.0 g
	Lauryl diethanolamine	2.0 g
	Laurylamineoxyde	1.5 g
	Methoxethylcellulose	0.7 g
	Water to final volume	100.0 ml

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Example 4**Surgical Scrub-Up**

	Triclosan	1.5 g
	n-Propanol	70.0 ml
	Phenoxyethanol	4.0 ml
30	Sod. alkyl lauramido	
	- monethanolamine sulphosuccinate	4.0 g
	lauryldiethanolamide	2.0 g
	Water to final volume	100.0 ml

Example 5

	Povidone Iodine	10.0 gm
	Hexachlorophene	0.5 gm
	Isopropanol	45.0 gm
	Fenopon Co 436	10.0 gm
	Lauryl diethanolamide	2.0 gm
40	Lauryl monoethanolamide	2.0 gm
	Water to final volume	100.0gm

During the whole mixing process care has to be taken to ensure that the pH is always below 6.0 and is to be finally adjusted to 4.5 with either citric acid or triethanolamine.

Industrial Applicability

5 It should be clear that the compositions of the present invention will find wide use in medical, veterinary, and food processing industries.

The foregoing describes only some embodiments of the present invention and modifications obvious to those skilled in the art can be made thereto without departing from the scope of the invention.

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Claims

1. An antiseptic cleansing composition comprising an alkanol and an aqueous concentrate of a surfactant.
2. The composition of claim 1 further comprising a biocide.
- 5 3. The composition according to claim 1 or claim 2 where the alkanol is a water-soluble aliphatic alcohol of not less than 40% and not more than 80% of the total volume.
4. The composition according to any one of claims 1 to 3 wherein the alkanol is selected from the group consisting of ethyl and n-propyl alcohol.
- 10 5. The composition according to any one of claims 1 to 4 wherein the surfactant is selected from the group consisting of an anionic, non-ionic and an amphoteric surfactant.
6. The composition according to any one of claims 1 to 5 wherein the biocide is selected from the group consisting of a water-soluble cationic bacteriocide, an iodophor, 15 or and a water-insoluble bacteriostat.
7. The composition according to claim 6 wherein the water-soluble bacteriocide is chlorhexidine gluconate, the iodophor is povidone iodine, and the water-insoluble bacteriostat is triclosan or hexachlorophene.
8. A method for cleansing skin comprising applying the composition of claim 20 1 onto the skin in a sufficient amount and for a sufficient period of time in order to achieve asepsis.
9. The method of claim 8 wherein the period of time is between 30 and 90 seconds.
10. The method according to claim 8 or claim 9 further comprising allowing 25 the alkanol in the composition on the skin to evaporate whereby the skin is substantially dry, applying a small amount of water to the substantially dry skin, washing the skin under foam generation and finally rinsing the skin.
11. The method of claim 10 wherein the skin is rinsed with water.

AMENDED CLAIMS

[received by the International Bureau on 18 February 1993 (18.02.93),
original claim 4 amended;
other claims unchanged (1 page)]

Claims:

1. An antiseptic cleansing composition comprising an alkanol and an aqueous concentrate of a surfactant.
2. The composition of claim 1 further comprising a biocide.
5. 3. The composition according to claim 1 or claim 2 where the alkanol is a water-soluble aliphatic alcohol of not less than 40% and not more than 80% of the total volume.
4. The composition according to any one off claims 1 to 3 wherein the alkanol is selected from the group consisting of ethanol, n-propanol and isopropanol.
5. The composition according to any one of claims 1 to 4 wherein the surfactant 10 is selected from the group consisting of an anionic, non-ionic and an amphoteric surfactant.
6. The composition according to any one of claims 1 to 5 wherein the biocide is selected from the group consisting of a water-soluble cationic bacteriocide, an iodophor, or and a water-insoluble bacteriostat.
15. 7. The composition according to claim 6 wherein the water-soluble bacteriocide is chlorhexidine gluconate, the iodophor is povidone iodine, and the water-insoluble bacteriostat is triclosan or hexachlorophene.
8. A method for cleansing skin comprising applying the composition of claim 1 onto the skin in a sufficient amount and for a sufficient period of time in order to achieve 20 asepsis.
9. The method of claim 8 wherein the period of time is between 30 and 90 seconds.
10. The method according to claim 8 or claim 9 further comprising allowing the alkanol in the composition on the skin to evaporate whereby the skin is substantially dry, 25 applying a small amount of water to the substantially dry skin, washing the skin under foam generation and finally rinsing the skin.
11. The method of claim 10 wherein the skin is rinsed with water.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU92/00539

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.⁵ C11D 3/48 A61K 7/48 7/50

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC C11D 3/48 A61K 7/48 7/50

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU: IPC as above

Electronic data base consulted during the international search (name of data base, and where practicable, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
X	AU,A, 29278/57 (224846) (SCOTTISH OILS LIMITED) 9 January 1958 (09.01.58) page 2, example 1, claims 1-12	1-5
X	AU,A, 575/66 (407546) (JOHNSON AND JOHNSON) 20 July 1967 (20.07.67) pages 2-4; page 15; page 17; claims 1-11	1-11
X	AU,B, 49571/85 (590224) (BRUNO ANTHONY GLUCK) 17 April 1986 (17.04.86) pages 1-3; page 4, line 18; examples; claims 1-13	1-2, 4-11

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Date of the actual completion of the international search 15 December 1992 (15.12.92)	Date of mailing of the international search report 24 DEC. 1992 (24.12.92)
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate of the relevant passages	Relevant to Claim No.
X	AU,B, 45579/89 (628110) (UNILEVER PLC) 7 June 1990 (07.06.90) page 4,claims 1-23	1, 5, 8-11
X	AU,A, 48888/90 (CIBA-GEIGY AG) 9 August 1990 (09.08.90) claims 1-19	1, 3-5
X	DD,A, 203685 (VEB LEUNA WERK ULRICH) 2 November 1983 (02.11.83) claims 1-4	1-11
X	PATENT ABSTRACTS OF JAPAN, C-679, page 163, JP,A, 1-272503 (ASHAHI DENK A KOGYO K K) 31 October 1989 (31.10.89) abstract	1-11

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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